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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/007,839	11/08/2001	Theodore W. Houston	TI-23546	7628

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EXAMINER
SCHILLINGER, LAURA M

ART UNIT	PAPER NUMBER
2813	

DATE MAILED: 01/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/007,839	HOUSTON ET AL.	
	Examiner	Art Unit	
	Laura M Schillinger	2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 June 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

This Action is in response to the Applicant's Appeal Brief filed 9/30/02 in Paper No.7.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Blewer ('200).

In reference to claim 1, Blewer teaches a method comprising:

a) forming a structure (Fig.4 (5)) having porous semiconductor material at a first surface thereof (Fig.4 (4));

b) sealing the surface (Col.4, lines: 19-22- which teaches densification of the oxidized porous silicon- this densification acts to seal the OPS layer from subsequent HF etching);

c) forming an epitaxial semiconductor layer on the porous material (Col.2, lines: 5-10),

c) implanting an oxidizing species into the porous semiconductor material after step b (Col.1, lines: 30-45),

d) reacting the oxidizing species with the porous semiconductor material to form a buried dielectric layer beneath the epitaxial layer (Col.2, lines: 10-20).

In reference to claim 2, Blewer teaches wherein the oxidizing species consists of O (col.2, lines: 10-20).

In reference to claim 3, Blewer teaches wherein the semiconductor layer consists of Si (Col.2, lines: 10-15).

In reference to claim 4, Blewer teaches a method comprising:

a) anodizing a Si wafer to form porous Si (Col.3, lines: 50-55 and Col.2, lines: 30-45);

b) sealing the surface(Col.4, lines: 19-22- note that steam is heated H_2O);;

c) forming an epitaxial semiconductor layer on the porous material (Col.2, lines: 5-10),

c) implanting an oxidizing species into the porous semiconductor material after step b (Col.1, lines: 30-45),

d) reacting the oxidizing species with the porous semiconductor material to form a buried dielectric layer beneath the epitaxial layer (Col.2, lines: 10-20).

In reference to claim 5, Blewer teaches wherein the semiconductor layer consists of Si (Col.2, lines: 10-15).

In reference to claim 6, Blewer teaches a method comprising:

a) partially anodizing a Si wafer to form porous Si (Col.3, lines: 30-60);

b) sealing the surface(Col.4, lines: 19-22);

c) forming an epitaxial semiconductor layer on the porous material (Col.2, lines: 5-10),

c) implanting an oxidizing species into the porous semiconductor material after step b(Col.1, lines: 30-45),

d) reacting the oxidizing species with the porous semiconductor material to form a buried dielectric layer beneath the epitaxial layer (Col.2, lines: 10-20).

In reference to claim 7, Blewer teaches wherein the oxidizing species consists of O (Col.2, lines: 10-20).

In reference to claim 8, Blewer teaches wherein the semiconductor layer consists of Si(Col.2, lines: 10-15).

In reference to claim 9, Blewer teaches the device as a result of claim 1 (linking claim-automatically rejected with claim 1).

In reference to claim 10, Blewer teaches the device as a result of claim 4 (linking claim-automatically rejected with claim 4).

In reference to claim 11, Blewer teaches the device as a result of claim 6 (linking claim-automatically rejected with claim 6).

In reference to claim 12, wherein sealing includes heating the porous semiconductor in a H ambient (Col.4, lines: 19-22- note that steam is heated H_2O);.

In reference to claim 13, wherein sealing includes heating the porous semiconductor in a H ambient(Col.4, lines: 19-22- note that steam is heated H_2O);.

In reference to claim 14, wherein sealing includes heating the porous semiconductor in a H ambient(Col.4, lines: 19-22- note that steam is heated H_2O);.

Response to Arguments

Applicant's arguments filed 9/30/02 have been fully considered but they are not persuasive. Applicant's arguments reflect a misunderstanding of the Examiner's prior art rejection. To be clear, Blewer teaches densifying porous silicon through a steam treatment. (Col.4, lines: 19-25). The densification step taught by Blewer is equivalent to "sealing" as claimed by the applicant. Claims must be given their broadest reasonable interpretation, the term sealing as defined by Merriam-Webster's Collegiate Dictionary Tenth Edition (1998) means "to close or make secure against access, leakage, or passage by a fastening or coating". Blewer teaches that oxidized porous silicon has a high etch rate and densification is necessary to prevent this. Therefore, densification makes the porous silicon layer substantially secure against access, leakage or passage of the hydrofluoric acid. Therefore, densification is "sealing" as claimed by the Applicant.

Applicant's assertion that the Examiner's rejection of the sealing step was predicated upon "steam" is incorrect. The steam constitutes the heated hydrogen ambient. In light of Applicant's confusion the Examiner has elected to reopen prosecution to clarify matters prior to taking such misconceptions to the Board of Appeals.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura M Schillinger whose telephone number is (703) 308-6425. The examiner can normally be reached on M-T, R-F 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl W Whitehead, Jr. can be reached on (703) 308-4940. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1500.

LMS
December 16, 2002

CARL WHITEHEAD, JR.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800